

at least one of said first insulative protecting film and said second insulative protecting film, on a terminal portion side of the flexible insulative substrate, is thinner than the insulating substrate with respect to thickness.

REMARKS

This is in response to the Office Action dated June 5, 2002. Claims 1-3 and 8-11 have been canceled, without prejudice in view of the Restriction/Election requirement. New claim 18 has been added. Thus, claims 4-7 and 12-18 are now pending.

For purposes of example, and without limitation, certain example embodiments of the instant invention relate to a flexible wiring board including a flexible insulating substrate 1. As shown in the Fig. 1 embodiment for example, a first wiring 2 and a first insulative protecting film 4 are located on one side/surface of the flexible insulating substrate 1; and a second wiring 2 and a second flexible insulative protecting film 4 are located on the other side/surface of the flexible insulating substrate 1. In other words, the first and second wirings 2 are on opposite sides of the flexible insulative substrate 1 as shown in Fig. 1. Likewise, the first and second insulative protecting films 4 are on *opposite sides* of the flexible insulative substrate 1 as shown in Fig. 1. At least one of the insulative protecting films 4 has a thickness less than that of the flexible insulative substrate 1. The smaller thickness is highly advantageous over the prior art. For example, as explained on page 22 of the instant specification:

"... the thickness of the insulative protecting film 4 on the side of the plated layer 3 (lower side in Fig. 1) is made thinner than the thickness of the base polymer film 1. This relieves bending stress on a boundary portion 7 between the insulative protecting film 4 and the plated layer 3 when the flexible wiring board is bent, compared with the conventional flexible wiring board which uses polymer

films of the same thickness for both the insulative protecting film and the base polymer film, thus effectively preventing wire breakage of the copper foil pattern 2 at the boundary portion 7 between the insulative protecting film 4 and the plated layer 3 when the flexible wiring board is bent repeatedly.

Claim 4 stands rejected under 35 U.S.C. Section 103(a) as being allegedly unpatentable over Eichelberger (US 4,452,182). This Section 103(a) rejection is respectfully traversed for at least the following reasons.

Claim 4 requires that: (a) the flexible insulating substrate be "flexible"; (b) the first and second wirings be on opposite sides/surfaces of the flexible insulating substrate; (c) the first and second insulative protecting films be on opposite sides/surfaces of the flexible insulating substrate; and (d) at least one of the insulative protecting films have a thickness less than that of the flexible insulating substrate. For example, see Fig. 1 of the instant application where the first and second wirings 2 are on opposite sides of the flexible insulative substrate 1; and the first and second insulative protecting films 4 are on opposite sides of the flexible insulative substrate 1. Fig. 1 also illustrates insulative protecting films 4 having respective thickness(es) less than that of flexible insulative substrate 1.

Eichelberger fails to disclose or suggest each of the aforesaid aspects (a), (b), (c) and (d) required by claim 4. For the convenience of the Examiner, Exhibit 1 attached hereto is a cross sectional diagram of the embodiment of Eichelberger being relied upon by the Office Action. Eichelberger teaches directly away from the invention of claim 4, and cannot possibly meet or suggest the same for at least the following reasons.

Substrate 14 of Eichelberger is of alumina, and thus rigid (*not flexible*). Thus, substrate 14 of Eichelberger cannot possibly be used to meet the "flexible insulating substrate" of claim 4. Moreover, all of Eichelberger's conductors and dielectrics referred to by the Office Action are on the *same side* of the rigid substrate 14 (see Ex. 1 attached hereto). In contrast, claim 4 requires that the wirings be on *opposite* sides of the flexible substrate; and also that the insulative protecting films be on *opposite* sides of the flexible substrate. Eichelberger fails to disclose or suggest these aspects of claim 4. Thus, even if Eichelberger were modified as alleged in the Office Action, the invention of claim 4 still would not be met.

For at least the foregoing reasons, it is respectfully requested that all rejections be withdrawn. Claim 4 and all claims dependent thereon are in condition for allowance.

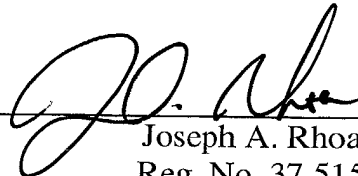
As a final matter, applicant respectfully submits that 7 and 12-17 belonging to species B and C should be examined along with claim 4. If claims 4-6 are allowable, then is it submitted that claims 7 and 12-17 should also be allowable.

If any minor matter remains to be resolved, the Examiner is invited to telephone the undersigned with regard to the same.

Respectfully submitted,

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Eichelberger Prior Art

3rd Dielectric - Col. 9, ln. 46

2nd Conductors - Col. 9, ln. 45

2nd Dielectric 36

Metal Conductors 34

Dielectric 32

Rigid
Substrate 14

Exhibit 1